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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,882	08/07/2000	MIKKEL THORUP	106989	3281

7590

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EXAMINER

BRUCKART, BENJAMIN R

ART UNIT	PAPER NUMBER
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2155

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/633,882	Applicant(s) THORUP ET AL.	
	Examiner Benjamin R. Bruckart	Art Unit 2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2005.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19, 21 and 23-27 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-19, 21 and 23-27 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Status of Claims:

Claims 1-19, 21, 23-27 are pending in this Office Action.

Claims 2, 21, 23, and 27 are amended.

Claims 20 and 22 are cancelled.

Claims 23 and 27 are allowed.

The 35 U.S.C. 112, second paragraph rejection on claim 27 is withdrawn in light of applicant's amendment.

Petition to Revive

The petition to revive the case was received on 12/14/05 and was granted on 1/13/06.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-12, 21, 23-27 are rejected because the claimed invention is directed to non-statutory subject matter. The claims are directed to abstract ideas, algorithms and methods to control network traffic flow. The examiner cannot find any hardware embodiment in the claims or in the specification. Applicant has presented multiple mathematical and conceptual formulas with a useful result but the result is based on an abstract idea, best neighbor approach. While the best neighbor approach is cited in the specification the definition in the specification is not

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sufficient to enable one of ordinary skill in the art to perform the features and produce repeatable results. Similar issues with the multi dimensional cost function.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-19, 21, 23-27 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The best neighbor approach is defined but not in enough detail to allow one of ordinary skill in the art to perform the features of invention. While the best neighbor approach is defined on pages 11-12, the best neighbor approach is defined in terms of other algorithms with exceptions to the other algorithms but there isn't a clear and concise enabling definition that would allow one of ordinary skill in the art to perform the features and receive repeatable results. The same issues revolve around the multi dimensional cost function as the examiner cannot ascertain the necessary information for this limitation.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1-19, 21, 23-27 are rejected under 35 U.S.C. 112, second paragraph, as not defining clear meets and bounds of the claims. While a best neighbor approach is defined in the specification, the boundaries and features of the algorithm are not clearly limited or defined.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-19, 21, 24-26 are rejected on the ground of nonstatutory double patenting over claims 1-20 of U. S. Patent No. 6,829,220 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows:

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Instant Application 09/633,882	Patented Case 6,829,220	Evidence
Claim 1 and 12	Claim 1	The preambles are the same, generating a set of control weights for network traffic flow, best-neighbor approach and controlling the traffic based on the weights
Claim 3	Claims 7 and 8	Impatience technique
Claim 4	Claim 9	Weights based on diversification process
Claim 5	Claim 10	Limited range diversification process
Claim 6	Claims 7 and 8	Based on a best neighbor approach that uses impatience technique
Claim 7	Claim 9	Weights based on diversification process
Claim 8	Claim 10	Limited range diversification process
Claim 9	Claim 11 and 17+19	Piece wise linear cost function
Claim 10	Claim 2	First and second traffic costs relative to the weights; evaluating and selecting=setting
Claim 11	Claim 12	Weights based on rarefied neighborhood search
Claim 13	Claim 13	The preambles are the same, both devices generating weights for links based on best neighbor approach and controlling the traffic flow
Claim 14	Claim 7	At least one of impatience and anti-cycling
Claim 15	Claim 8	Uses at least an anti-cycling and impatience technique
Claim 16	Claim 18	diversification
Claim 17	Claim 10	Limited range diversification process
Claim 18	Claim 18	At least one diversification process
Claim 19	Claim 17, 19	Piece wise linear cost function based on 2 or more segments

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Claim 21	Claims 1 and 2	Preambles the same, N links used to when setting control weight with best neighbor algorithm and controlling the traffic
Claim 24	Claim 17, 19	Piece wise linear cost function based on 2 or more segments

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Response to Arguments

Applicant's arguments filed 12/14/05 have been fully considered but they are moot in view of new grounds of rejection. See below.

Invention as claimed

Claims 1, 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable by U.S. Patent No. 6,359,861 by Sui et al in view of Frigioni et al ("Experimental Analysis of Dynamic Algorithms for the Single Source Shortest Paths Problem")(1998 ACM Press, Article No. 5, pages 1-3, 5-6) ("Frigioni").

Regarding claim 1,

The Sui reference teaches a method for controlling traffic flow in a network (Sui: col. 4, lines 1-9), comprising:

generating a set of control weights relating to network traffic flow (Sui: col. 4, lines 1-9);
and

controlling traffic flow in the network using the set of control weights (Sui: col. 7, lines 14-23).

The Sui reference fails to teach a best neighbor approach.

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The Frigioni teaches a best-neighbor approach (Page 6, 1st Paragraph; the Dijkstra algorithm).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the method of controlling traffic flow in a network as taught by Sui while employing a best neighbor approach as taught by Frigioni in order to minimize computation by not computing the entire table from scratch at each iteration. (Frigioni, Page 1, 2nd Paragraph).

Regarding claim 13,

The Sui reference teaches an apparatus for controlling traffic flow in a network (Sui: col. 4, lines 1-9), comprising:

a weight device that generates a set of control weights, one for each link of the network (Sui: col. 4, lines 1-9); and

at least one network node that receives one or more control weights of the set of control weights, and controls traffic flow in the network based at least the one or more control weights (Sui: col. 7, lines 14-23).

The Sui reference fails to teach a best neighbor approach.

The Frigioni teaches a best-neighbor approach (Page 6, 1st Paragraph; the Dijkstra algorithm).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the method of controlling traffic flow in a network as taught by Sui while employing a best neighbor approach as taught by Frigioni in order to minimize computation by not computing the entire table from scratch at each iteration. (Frigioni, Page 1, 2nd Paragraph).

Regarding claim 21, a method for controlling traffic flow in a network having N interconnected links (Sui: col. 4, lines 1-9), where N is an integer, comprising:

selecting a control weight for each of said N links by considering an N-dimensional cost function of traffic load on each of said N links that is related to said weights (Sui: col. 4, lines 1-9); and

controlling traffic flow in the network using the set of control weights (Sui: col. 7, lines 14-23).

The Sui reference fails to teach a multi dimensional cost function based on a best neighbor approach.

said selecting being adapted to accept a set of control weights that corresponds to a point on said multidimensional cost function that is or approaches a local minimum, where said point is selected by means of a best-neighborhood algorithm

The Frigioni teaches a best-neighbor approach (Page 6, 1st Paragraph; the Dijkstra algorithm).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the method of controlling traffic flow in a network as taught by Sui while employing a best neighbor approach as taught by Frigioni in order to minimize computation by not computing the entire table from scratch at each iteration. (Frigioni, Page 1, 2nd Paragraph).

Remarks

Applicant has amended claim 23 to put in allowable form. Applicant has made a minor amendment to claim 2 and amendments to claim 21 and 27. Applicant has argued most of the limitations.

The applicant argues:

The Frigioni reference does not teach a best neighbor approach.

In response, the examiner respectfully submits:

The examiner has carefully reviewed the arguments and features of the invention in light of the specification but does not read the specification into the claim language. Applicant relies heavily upon the specification to define the many features and algorithms of the invention. Because of the long and variable definitions from the specification and selective use of the word modified, the examiner cannot determine the full extent of some of the definitions particularly best neighbor approach versus modified best neighbor approach and other cited features. The examiner requests that applicant put the definitions from the specification into the claim limitations to explicitly define the features which he is arguing. Otherwise, applicant is arguing unclaimed features.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin R. Bruckart whose telephone number is (571) 272-3982. The examiner can normally be reached on 8:00-5:30PM with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Benjamin R Bruckart
Examiner
Art Unit 2155

brb



SALEH NAJJAR
SUPERVISORY PATENT EXAMINER